persistent asthma in Spain is going to represent a savings of 11€ millions in the Spanish National Pharmaceutical budget in the next 5 years.

**PAA4**

### COST-EFFECTIVENESS ANALYSIS OF OMALIZUMAB VS STANDARD THERAPY (ST), IN THE MANAGEMENT OF SEVERE ASHTMA

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**OBJECTIVES:** Omalizumab is a monoclonal antibody indicated for treatment of severe persistent allergic asthma inadequately controlled despite an optimal controller therapy. The purpose of this study is to determine a cost-effectiveness analysis of omalizumab vs ST in the treatment of severe asthma in Mexico. **METHODS:** A cost-effectiveness analysis was performed based on a six-state Markov model. The transition probabilities and the response rate were obtained from a meta-analysis. The pattern of resource use was derived from the Second Mexican Consensus of Asthma (steps 4 and 5). Unit costs of resources and medications were obtained from medical care in IMSS 2004, and were transformed to current prices using inflation rates. The cost of omalizumab was provided by the laboratory. The time horizon was one year. A discount rate was not required. The model was calibrated. The effectiveness rate was the number of days free from exacerbations. A one-way and two-way probabilistic sensitivity analysis was used using a Tornado chart. A stochastic optimization analysis was performed with 500 runs involving 100,000 Monte Carlo iterations; the budget and percent use of omalizumab were the model restrictions. Maximization of incremental net benefits was obtained with the model. **RESULTS:** The expected cost per patient was $14,940 USD (±$502) with omalizumab, while this figure was $6,144 USD (±$207) for ST. The expected effectiveness was 333 (±3) and 306 (±6) days without exacerbation/year, respectively. The stochastic optimization maximized the net incremental benefits with a ratio of 42% for omalizumab, and 58% for the standard therapy. The sensitivity analysis was robust in the conclusions of the basic study. **CONCLUSION:** Omalizumab is a cost-effective therapy in the management of patients with severe asthma. The ratio for omalizumab acquisition with stochastic optimization was 42%.

**PAA5**

### CLINICO-ECONOMICAL ANALYSIS OF USING BUDESONID/FORMOTEROL INHALER FOR TREATMENT OF BRONCHIAL ASTHMA

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**OBJECTIVES:** To analyze cost-effectiveness of budesonid/formoterol versus typical practice for treating asthma in Russian health care system. **METHODS:** Open, randomized, comparative trial was carried out in 16 cities of Russia. 300 outpatients were observed during 6 months. A total of 150 from them were prescribed budesonid/formoterol, 150 continued anti-inflammatory therapy prescribed earlier (typical practice of treating patients). IN all, 103 patients from them received inhaled corticosteroids 800–1600 mcg as monotherapy, 21 patient received inhaled corticosteroids in a combination with long-acting 2-agonists and 26 patient received cromons. The degree of restriction of physical activity, frequency of day time and night attacks were estimated on a scale in 5 points (0-absence of the infringements, 2–4-moderate and heavy infringements). Application of udesonid/formoterol has shown the best results by all criteria of clinical efficiency. **RESULTS:** The increase of FEV1 by the end of research (20% on a median) was significantly greater in group of abudesonid/formoterol than in control group (11%). Cost of treatment (cost of drugs and physician visits) was somewhat higher in budesonid/formoterol group. Average cost-effectiveness ratio showed that the cost per % increase of FEV1in group of budesonid/formoterol (484,08 rubles for the 1 month, 1742.68 rubles for 6 months) was lower than in group of comparison (1131.56 rubles and 2468.86 rubles). Cost per patient with absence of moderate or heavy infringements on all used scales at the end of study also was lower in the first group (9220.54 rubles for the 1 month; 44,684.15 rubles for 6 months) than in the second group (11,911.13 rubles, 59,037.78 rubles). **CONCLUSION:** Budesonid/formoterol is cost-effective in treatment of bronchial asthma.

**PAA6**

### COST EFFECTIVENESS OF BREATH-OPERATED INHALERS IN UNITED KINGDOM PRIMARY CARE

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**OBJECTIVES:** A large scale database analysis was undertaken comparing resource use in UK primary care patients receiving inhaled steroids via MDI and BOI. The aim was to compare resource use over a two-year period of patients receiving inhaled beclometasone via MDI, with patients utilising BOI. **METHODS:** Data was extracted from Din-Link patient-level databases to compare resource utilisation over 24 months in patients receiving BOI with those on standard MDI. Entry criteria were: 1) Diagnosis of asthma; 2) Receiving beclometasone via MDI; and 3) No other preventer medication. Index event was change to a different MDI or BOI. Key measures included annualised average costs of: i) Primary care consultation for asthma; ii) Anti-asthma prescriptions; iii) Spacer devices; and iv) Hospital referral and admissions for asthma. **RESULTS:** Primary care medication costs for child patients were ≤108.62 (BAI) versus ≤77.23(MDI) and for adults were ≤79.35 (BAI) versus ≤92.76 (MDI). Non-medication resource use for child patients over the period was: GP consultation (≤63.00 BAI vs ≤102.68 MDI); outpatient attendance (≤18.43 BAI vs ≤22.62 MDI); hospital admissions (≤0.00 BAI vs ≤15.46 MDI). Non-medication resource use for adult patients was: GP consultation (≤82.75 BAI vs ≤114.20 MDI); outpatient attendance (≤10.75 BAI vs ≤12.30 MDI); hospital admissions (≤28.35 BAI vs ≤21.39 MDI). Total asthma costs over the two year period for BAI patients were ≤190.05 (children) and ≤201.20 (adults). Comparative figures for MDI patients were ≤217.99 (children) and ≤240.56 (adults). **CONCLUSION:** The additional acquisition cost associated with BOI appears to be offset by enhanced clinical effectiveness. A trend in cost effectiveness emerged in favour of BOI versus the equivalent MDI for both children and adults.

**PAA7**

### A PHARMACOECONOMIC EVALUATION OF SUBLINGUAL IMMUNOTHERAPY COMPARED TO SUBCUTANEOUS IMMUNOTHERAPY IN THE TREATMENT OF GRASS POLLEN INDUCED RHINOCONJUNCTIVITIS

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**OBJECTIVES:** For patients with grass pollen induced rhinoconjunctivitis where immunotherapy is appropriate there are currently two medically approved treatment alternatives available in Finland and Norway: Subcutaneous Immunotherapy (SCIT) and

Sublingual Immunotherapy (SLIT). Both contain the allergen extract from timothy grass (Phleum pratense). The objective of this analysis was to perform a pharmacoeconomic evaluation of SLIT with a grass allergy tablet compared to SCIT in both the Norwegian and Finnish markets. **METHODS:** A cost-minimisation approach was deemed appropriate for this evaluation, based on assessments of the alternative's pharmacokinetic profiles, potential mechanisms of actions and an indirect comparison of results from clinical trials. SLIT was judged to provide at least comparable clinical outcomes to those of SCIT. Total costs from a societal perspective related to the therapies were calculated based on national data on resource use and unit costs. Estimates of resource use were based on guidelines, the literature and interviews with national clinical specialists. Resources included the quantities used of the chosen immunotherapy, the number of physician visits related to administration and follow up of the chosen therapy, patient travel and resources lost due to absence from work in connection with receiving the therapy. Unit costs were based on national tariffs and wage statistics. **RESULTS:** The expected savings in total cost of treatment with SLIT compared to SCIT are approximately 1160 € and 900 € in Norway and Finland respectively. Alternative scenarios and one-way sensitivity analyses indicate the robustness of the results. **CONCLUSION:** The result of this cost-minimisation analysis indicates that for patients with grass pollen induced rhinoconjunctivitis where immunotherapy is appropriate, SLIT with a grass allergy tablet is a cost-saving alternative to SCIT from a societal perspective, both in Norway and in Finland.

**PAA8**

### COST OF REFRACTORY SEVERE PERSISTENT ASTHMA IN CZECH REPUBLIC—COST OF ILLNESS STUDY

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**OBJECTIVES:** Asthma patients with severe persistent disease (GINA Step 4) have the greatest medical need among the asthmatic population but also consume the highest economic costs. In our study we have selected severe persistent asthma patients who have not responded to high-dose antiasthmatic drugs (inhaled and oral corticosteroids, long-LABA, antileukotrienes and theophylline). **METHODS:** In a retrospective setting we have collected direct and indirect costs for 51 patients (32 women and 19 men) over the period of one year with refractory asthma in four clinical centres during August to November 2006. **RESULTS:** The average time from diagnosis was 17.5 years. Two thirds of patients were fully disabled and in rest of patients working absence was more than 90 days per year. There was high occurrence of concomitant diagnoses—hypertension in 37%, osteoporosis in 33% and gastropathy in 31% due to high doses of oral steroids. The mean length of hospitalization was 11.8 days per year in standard ward and 2.6 days in critical care. Emergency department was visited 8.1 times per year and outpatient departments more than 20 times during the analysed time period. Total direct medical costs were 4756 EUR/year. Expenditure for hospitalizations was 2320 EUR, outpatient care 374 EUR and emergency care 59 EUR. The cost of asthma medication was 1484 EUR and 226 EUR for other medication. Indirect costs (social and sickness benefits, productivity loss) were 7262 EUR per year. **CONCLUSION:** The annual total direct plus indirect costs of one patient with refractory severe persistent asthma were 12018 EUR. Based on this results there are unmet medical and economic needs in therapy of this subset of asthma patients in Czech Republic.

**PAA9**

### RISK-ADJUSTED COSTS AND OUTCOMES FOR MILD PERSISTENT ASTHMA PATIENTS ON ALTERNATIVE CONTROLLER THERAPIES

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**OBJECTIVES:** Compare risk-adjusted costs and patient outcomes measured by hospitalizations and emergency room visits in mild persistent asthma patients initiating regular use of inhaled corticosteroids (ICS), ICS and long acting $\beta_2$-agonists (LABA), or leukotriene modifiers (LM). **METHODS:** Study patients, selected from a privately insured claims database (1999–2005), had at least one asthma diagnosis; no diagnosis of COPD; mild persistent asthma as defined by the 2005 HEDIS, Leidy's reliever and oral steroid methods, and the 2004 GINA guidelines; and initiated regular use of ICS, ICS + LABA or LM. Chi-squared tests were used for descriptive pairwise comparisons of patient outcomes. Generalized linear models with log link and gamma distribution adjusting for patient characteristics were used for comparisons of total and asthma-related direct costs in the 12-months after the first regular study controller use. **RESULTS:** The final sample included 319 patients with regular use of ICS, 414 patients with ICS + LABA, and 550 patients with LM. There were no significant differences in patient outcomes, as measured by hospitalizations and emergency room visits (all-cause as well as asthma-specific) among the three cohorts. Total risk-adjusted direct costs were significantly lower with ICS and LM compared with ICS + LABA (ICS: \$4305, $P = 0.0158$ compared with ICS + LABA; ICS + LABA: \$4997, $P < 0.0857$ compared with LM; LM: \$4562) and not significantly different between ICS and LM. Asthma-related risk-adjusted direct costs were the lowest with ICS compared with both ICS + LABA and LM (ICS: \$782, $P < 0.01$ compared with ICS + LABA, $P < 0.01$ compared with LM; ICS + LABA: \$1126, $P < 0.01$ compared with LM; LM: \$871). **CONCLUSION:** Regular ICS use in mild persistent asthma was associated with lower total direct costs compared with ICS + LABA and the lowest asthma-related direct costs compared with ICS + LABA or LM, without any corresponding difference in patient outcomes.

**PAA10**

### ADULT ASTHMA: A COHORT ANALYSIS OF USE AND COST OF HOSPITAL AND EMERGENCY DEPARTMENT CARE BY LOCATION OF RESIDENCE OVER TWELVE MONTHS

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**OBJECTIVES:** As asthma rates increase, questions about the relationship to residential location have been raised in many countries. Thus, inpatient and emergency department (ED) care for adult (age > = 17 years) asthmatics and related costs were examined by residential location for one year. **METHODS:** Using 2001–02 Massachusetts data, patients treated for asthma (ICD-9 principal diagnosis code: 493.00–493.92) were identified. An encounter profile was established for each patient starting with the first asthma-related stay/visit (index encounter) at any hospital or ED in 2001, and included all subsequent inpatient and ED care for asthma within twelve months. Using zip codes, patients